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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,985	03/19/2007	Sumifusa Ikenouchi	2006_0500A	7148

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EXAMINER	
DANG, KET D	

ART UNIT	PAPER NUMBER
3742	

MAIL DATE	DELIVERY MODE
06/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,985	IKENOUCHI, SUMIFUSA	
	Examiner	Art Unit	
	KET D. DANG	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/07/2006, 03/19/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 2003369333, filed on October 29, 2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mavretic et al. (US 6,424,232 B1 cited by application) in view of Metzger et al. (US Pub. No. 20010004729 A1 cited by application).

4. Regarding claims 1-16, Mavretic et al. disclose a plasma processing apparatus comprising: an RF generator 210 (fig. 2) operable to output RF power; an impedance matching network 220 (fig. 2) operable to receive the RF power; a plasma chamber 230 (fig. 2) operable to receive an output from the impedance matching network; and a control unit 608 (fig. 6) operable to control an operating condition for the plasma chamber, based on the information relating to the S parameter; a power transmission efficiency of the impedance matching network which is calculated based on the S parameter (col. 2, lines 17-51); wherein the impedance matching network is an automatic impedance matching network which, and the plasma chamber, detects the

impedance mismatch, and adjusts a variable capacitor included in the impedance matching network, to achieve impedance match between the impedance matching network and the plasma chamber (col. 2, lines 29-51; col. 6, lines 23-60); a control method for a plasma processing apparatus in which RF power is supplied by an RF generator to a plasma chamber through an impedance matching network so that plasma processing is performed in the plasma chamber, wherein a power transmission efficiency from the RF generator to the plasma chamber is calculated based on an S parameter of the impedance matching network (col. 2, lines 17-51), and a control unit 608 (fig. 6) of the plasma processing apparatus controls the plasma chamber in reference to the power transmission efficiency (col. 6, lines 61— col. 7, lines 7); wherein the RF power supplied by the RF generator 210 (fig. 2) is controlled in reference to the power transmission efficiency (abstract; col. 4, lines 17-30); wherein an amount of power the plasma chamber receives is obtained based on the power transmission efficiency (col. 2, lines 17-51); wherein when .eta., RL and Rm respectively denote the power transmission efficiency, a real resistance in the plasma chamber, and a real resistance in the impedance matching network, Rm=(RL/.eta.)-RL (col. 1, lines 62 – col. 2, lines 16; col. 4, lines 17-30), except for a storing unit operable to store information relating to an S parameter of the impedance matching network; wherein the information relating to the S parameter of the impedance matching network is at least one of the S parameter of the impedance matching network; wherein the S parameter of the impedance matching network is measured using an RF network analyzer; and wherein the S parameter of the impedance matching network is S21 which is a forward

transmission parameter. However, Metzger et al. teaches a storing unit operable to store information relating to an S parameter of the impedance matching network (page 5, paragraph 55; page 6, paragraphs 62 and 64); wherein the information relating to the S parameter of the impedance matching network is at least one of the S parameter of the impedance matching network (see figure 2; page 1, paragraphs 8 and 9); wherein the S parameter of the impedance matching network is measured using an RF network analyzer (page 2, paragraph 19); wherein the S parameter of the impedance matching network is S21 which is a forward transmission parameter (see figure 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention was made to modify the Mavretic's reference, to include a storing unit, S parameters, and RF network analyzer, as suggested and taught by Metzger, for the purpose of computing signal measurements at the network's input and output terminals (page 1, paragraph 10).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Keane et al. (US 5,195,045) disclose automatic impedance matching apparatus and method. Fischer et al. (US 6,242,360 B1) disclose plasma processing system apparatus, and method for delivering RF power to a plasma processing. And Harnett (US 5,842,154) discloses fuzzy logic tuning of RF matching network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KET D. DANG whose telephone number is (571) 270-7827. The examiner can normally be reached on Monday - Friday, 7:30 - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoang Tu can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KET D DANG/
Examiner, Art Unit 3742

/TU B HOANG/

Supervisory Patent Examiner, Art Unit 3742